Fricke A et.al., J Cancer Sci Ther 2016, 8:5 (Suppl)
http://dx.doi.org/10.4172/1948-5956.C1.066



# Evaluation of the SYT-SSX2 fusion gene transcript in synovial sarcoma cells and microvesicles as a potential biomarker for synovial sarcoma

**Fricke A, Ullrich P V, Cimniak A F V, Follo M, Nestel S, Heimrich B, Nazarenko I, Stark G B, Bannasch H, Braig D** and **Eisenhardt S U**
University of Freiburg, Germany

**Background:** Synovial sarcoma is an aggressive soft-tissue malignancy. This study examines the presence of the SYT-SSX fusion transcript in synovial sarcoma microvesicles as well as its potential role as a biomarker for synovial sarcoma.

**Patients & Methods:** Microvesicle release of synovial sarcoma cells was examined by transmission electron microscopy. RNA-content was analyzed by qPCR, nested PCR, nested qPCR and droplet digital PCR to compare their sensitivity for detection of the SYT-SSX fusion gene transcript. Whole blood RNA, RNA of mononuclear cells and microvesicle RNA of synovial sarcoma patients was analyzed for the presence of the fusion gene transcripts.

**Results:** Electron microscopic analysis revealed synovial sarcoma cells releasing membrane-enclosed microvesicles. *In vitro*, the SYT-SSX fusion gene transcript was detected in both synovial sarcoma cells and microvesicles. Nested qPCR proved to be most sensitive in detecting the SYT-SSX fusion gene mRNA. In contrast, the fusion gene transcript was not detected in peripheral blood cells and microvesicles of synovial sarcoma patients.

**Conclusion:** Synovial sarcoma cells release microvesicles harboring the *SYT-SSX* fusion transcript. Nested qPCR proved to be most sensitive in detecting the *SYT-SSX* fusion gene mRNA; however, more sensitive assays are needed to detect cancer-specific microvesicles in the peripheral blood of cancer patients.

## Biography

Fricke A completed her Medical Degree at the Medical Faculty of the University of Heidelberg, Germany, performing parts of her medical studies in Coimbra (Portugal), Montpellier (France) and Florianópolis (Brazil). She performed her Doctoral thesis at the Atherothrombosis and Vascular Laboratory at the Baker IDI Heart & Diabetes Institute in Melbourne, Australia. Currently, she works as a Resident at the Clinic for Plastic and Hand Surgery, Medical Center – University of Freiburg, Germany.

alba.fricke@uniklinik-freiburg.de

**Notes:**